WHAT IS CLAIMED IS

1. A method for processing packets in a TCP/IP communications network comprising the steps of:

a. providing a network traffic accelerator (NTA) implementing internally an internal transport layer, an internal network layer and at least one internal data link layer, said internal transport, network and at least one data link layers connected along an internal receive path;

b. inputting packets from an external data link layer into said internal network layer; and

c. processing said packets;

2. The method of claim 1, wherein said step of inputting packets includes inputting packets through an arbiter included in said NTA, said arbiter connected to said internal network layer.

3. The method of claim 1, wherein said step of inputting packets includes inputting protocol-unsupported packets, and wherein said step of processing includes processing said protocol-unsupported packets externally in an external software network layer to yield protocol-processed packets.

4. The method of claim 3, wherein said software network layer is implemented in a separate processing unit selected from the group consisting of a central processing unit, a network processing unit and a dedicated processing unit.

5. The method of claim 3, wherein said protocol-unsupported packets include IP fragment packets.

6. The method of claim 3, wherein said step of processing further includes returning said protocol-processed packets to said NTA for further processing in said internal transport layer.

7. The method of claim 6, wherein said further processing in said NTA includes processing said protocol processed packet in a session layer.

8. The method of claim 1, wherein at least one of said internal transport, network and data link layers is implemented in hardware.

9. A method for processing packets in a communications network implementing a TCP/IP protocol, comprising:

a. providing a network traffic accelerator (NTA) implementing internally an internal transport layer, an internal network layer and at least one internal data link layer, said internal transport, network and at least one data link layers connected along an internal receive path;

b. processing in said at least one internal data link layer a packet originating from a physical layer;

c. checking whether said packet is supported by a protocol of said internal network layer; and

d. based on the result of said checking, processing said packet in a network layer selected from the group consisting of said internal network layer and an external network layer;

10. The method of claim 9, wherein said step of checking is preceded by the steps of round robin arbitrating the joining on said receive path of said packets originating from internal and external physical layers, and forwarding said packets to said internal network layer.

11. The method of claim 9, wherein said result of said checking includes finding that said packet is protocol-supported, whereby said protocol-supported packet is processed in said internal network layer.

12. The method of claim 9, wherein said result of said checking includes finding that said packet is protocol-unsupported, whereby said protocol-unsupported packet is processed in said external network layer to yield a protocol-processed packet.

13. The method of claim 12, wherein said protocol-unsupported packets include IP fragment packets.

14. The method of claim 12, wherein said step of externally processing to yield a protocol-processed packet is followed by the step of returning said protocol-processed packet to said NTA for further processing in said internal transport layer.

15. The method of claim 9, wherein at least one of said internal transport, network and data link layers is implemented in hardware.

16. A method for accelerated packet processing in a TCP/IP communications network, comprising:

a. providing a network traffic accelerator (NTA) implementing internally an internal transport layer, an internal network layer and at least one internal data link layer, said internal transport, network and at least one data link layers connected along an internal transmit path;

b. processing in said internal transport layer a packet originating from a session layer;

c. checking whether said packet is supported by a protocol of said internal network layer;

d. based on the result of said checking, processing said packet in a network layer selected from the group consisting of said internal network layer and an external network layer;

e. forwarding said packet to said at least one internal data link layer for a check; and

f. based on said check, processing said packet in a data link layer selected from the group consisting of said at least one internal data link layer and an external data link layer;

17. The method of claim 16, wherein said step of checking finds that said packet is protocol-supported, and wherein said step of processing said packet in a network layer includes processing said packet in said internal network layer.

18. The method of claim 16, wherein said step of checking finds that said packet is protocol unsupported, and wherein said step of processing said packet in a network layer includes processing said packet in said external network layer.

19. The method of claim 16, wherein said step of processing said packet in an external data link layer includes processing said packet in a network interface card data link layer.

20. The method of claim 16, wherein at least one of said internal transport, network and data link layers is implemented in hardware.

21. A method for accelerated processing of a packet in a TCP/IP communications network comprising the steps of:

a. providing a network traffic accelerator (NTA) implementing an internal transport layer, an internal network layer and at least one internal data link layer, said internal transport, network and at least one data link layer connected along an internal transmit path;

b. inputting a protocol-unsupported packet from an external data link layer into said internal network layer; and

c. sending said protocol-unsupported packet from said internal network layer to be processed externally in an external software network layer, the external processing resulting in a protocol-processed packet.

22. The method of claim 21, wherein said software network layer is implemented in a separate processing unit.

23. The method of claim 22, wherein said separate processing unit is selected from the group consisting of a central processing unit, a network processing unit and a dedicated processing unit.

24. The method of claim 21, wherein said protocol-unsupported packet includes an IP fragment packet.

25. The method of claim 21, wherein said step of sending said protocol-unsupported packet from said internal network layer to be processed externally is followed by the step of returning said protocol-processed packet to said NTA and checking the data link layer destination of said protocol-processed packet.

26. The method of claim 25, wherein said checking results in said destination being said internal data link layer, the method further comprising processing said protocol-processed packet in said internal data link layer, followed by processing said protocol-processed packet in a NTA physical layer.

27. The method of claim 25, wherein said checking results in said destination being an external data link layer, the method further comprising processing said protocol-processed packet in said external data link layer.

28. The method of claim 27, wherein said external data link layer resides in a network interface card.

29. A network traffic accelerator comprising:

a. an internal transport layer, an internal network layer and at least one internal data link layer connected along an internal transmit path and an internal receive path; and

b. first means for processing a packet traveling along said receive path, said packet originating from a section layer selected from the group consisting of an internal physical layer and an external physical layer.

30. The network traffic accelerator of claim 29, further comprising second means for processing a packet traveling along said transmit path, said packet originating from a physical layer selected from a group consisting of an internal section layer and an external section layer.

31. The network traffic accelerator of claim 29, wherein said packet is selected from the group consisting of a protocol-supported packet and a protocol unsupported packet.

32. The network traffic accelerator of claim 30, wherein said packet is selected from the group consisting of a protocol-supported packet and a protocol unsupported packet.

33. The network traffic accelerator of claim 31, wherein each said packet is selected from the group of an external packet and an internal packet, and wherein said first means include a first arbiter connected in said internal return path to said internal network layer and operative to perform round robin arbitration between said external and internal packets.

34. The network traffic accelerator of claim 33, wherein said first means further include a first switch connected in said internal return path between said first arbiter and said internal data link layer, said first switch operative to direct a packet for processing in a network layer selected from the group of said internal network layer and an external network layer.

35. The network traffic accelerator of claim 34, wherein said packet directed for processing in an external network layer is returned as a protocol processed packet to the network traffic accelerator, the accelerator further comprising a second arbiter connected in said internal return path between said internal network and transport layers, said second arbiter operative to merge said protocol processed packet back into said internal return path.

36. The network traffic accelerator of claim 32, wherein said second means include a second switch connected in said internal transmit path between said internal transport and network layers, said second switch operative to direct a packet for processing in a network layer selected from the group of said internal network layer and an external network layer.

37. The network traffic accelerator of claim 36, wherein said second means further include a third switch connected in said internal transmit path to said internal network layer and operative to direct a packet for processing in an external data link layer.

38. The network traffic accelerator of claim 37, wherein said packet directed to said external network layer for processing becomes a protocol-processed packet, wherein said second means further include a third arbiter connected in said transmit path between said third switch and said internal data link layer, and wherein said third arbiter is operative to merge said protocol-processed packet back into said internal return path.

39. The network traffic accelerator of claim 33, wherein at least one of said internal transport, network and data link layers is implemented in hardware.

40. In a TCP/IP communications network, a system for packet processing comprising:

a. a processing unit;

b. a hardware network traffic accelerator (NTA) unit implementing a hardware network layer protocol, a hardware transport layer protocol and a hardware data link protocol of a seven layer OSI model thereby providing a NTA TCP/IP protocol, said NTA separate from said processing unit; and

c. means to process in said processing unit protocol-unsupported packets, whereby packets unsupported by said NTA TCP/IP protocol and received in said hardware network layer are sent to said processing unit for processing to yield network layer protocol-processed packets, said protocol-processed packets returned to said NTA for further TCP/IP protocol-supported processing.

41. The system of claim 40, further comprising means to connect said hardware network layer to an external data link layer, whereby said protocol-unsupported packets may originate in said external data link layer.